The US National Institutes of Health (NIH) guidelines for treating asthma classify patients into four severity levels (severe persistent, moderate persistent, mild persistent, and mild intermittent) based largely on clinically assessed symptoms and physical measurements such as forced expiratory volume. The guidelines also recommend specific regimens of various asthma medications for each severity level. **OBJECTIVE:** To use the medication regimens recommended by NIH to classify asthma severity based on patterns of drug use in prescription claims. **METHODS:** Using claims data from a large health insurer in the Northeast US, study patients were selected in part on the basis of having used zafirlukast continuously at some point during the 30 months covered by the database. Of the 780 study patients, 76.8% could be classified by a computer program into one of the four NIH severity categories based on their patterns of asthma drug use as specified in the NIH guidelines. The remaining 23.2% were classified through review of individual claim histories by a nurse abstractor. **RESULTS:** 60.9% of study patients were classified as having mild persistent asthma, 22.6% were moderate persistent, 10.4% were severe persistent, and 6.2% were mild intermittent. The nurse abstractor also performed a blind review of the claim histories for a 15% sample of patients who had been programmatically classified. The two classifications disagreed in only six cases (i.e., 93.3% agreement, kappa = 0.885, $P < 0.001$). **CONCLUSION:** Asthma patients can be classified by severity level based on drug use patterns in prescription claims with an acceptable level of validity based on clinical review. This methodology could facilitate efficient monitoring of asthma severity levels within patient populations.

**PRS7**

## DRIVERS OF DIAGNOSIS OF OBSTRUCTIVE LUNG DISEASE, BY STAGE OF SEVERITY

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COPD is known to be an underdiagnosed condition. Stage of disease is an important predictor of diagnosis of COPD. Previous work has demonstrated that disease stage, age, gender, race, smoking, cough, and breathlessness are drivers of diagnosis for obstructive lung disease [Coultas et al, ERS 1999]. **OBJECTIVES:** The purpose of the study was to determine whether different attributes or symptoms were responsible for diagnosis at different stages of disease. **METHODS:** The US National Health and Nutrition Examination Survey conducted 1988–1994 measured pulmonary function, respiratory symptoms and self-reported diagnosis on a representative sample of the US population. Stage was defined using spirometry, by ATS definitions. Physical functioning, symptoms questions, age, gender, race and smoking history were included as potential predictors of diagnosis. **RESULTS:** Only 19% of individuals with spirometry-defined COPD reported a history of diagnosed disease. Presence of 2 or more symptoms (cough, phlegm, sob, wheeze) was the only indicator which remained in the model for all stages. The overall OR was 17.5 (11.8, 26.0) Race was highly significant, OR 20.6 (1.8, 229.3), but only at stage 3. Physical functioning was significant only in the univariate analysis. **CONCLUSIONS:** These findings suggest that symptoms alone are prompting diagnoses of COPD at all levels of disease. But this population demonstrates that when disease is defined by spirometry, only a small proportion of individuals with COPD are actually being diagnosed.

**PRS8**

## ECONOMIC OUTCOMES OF STEROID INHALER USE PATTERNS IN A MANAGED CARE ORGANIZATION

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Inhaled corticosteroids have revolutionized the treatment of asthma and have now become the mainstay of therapy for patients with chronic disease. **OBJECTIVE:** The primary objective was to determine the relationship between inhaled steroid use patterns and asthma-related total health care cost (e.g. as hospitalizations, emergency room visits, and pharmacy cost) from a managed care perspective. **METHODS:** Retrospective computerized claims records from a large managed care organization were analyzed. Patients were included if they had an IDC-9 diagnosis code for asthma (493.xx) and received at least 1 inhaled beta agonist during a 3 month identification period. Patients who received a steroid inhaler during the identification period were included in the treatment group and those who never received a steroid inhaler were included in the control group. All patients were followed for a 1 year period, but were excluded if they were not continuously enrolled in the health plan. **RESULTS:** Patients who received a steroid inhaler had a higher pharmacy cost compared to those who did not ($453 versus $894, $P < 0.001$). In a multivariate regression analysis controlling for potential confounding factors such as age, gender, benefit design, disease severity, and number of comorbidities, pharmacy cost remained higher in the steroid inhaler group (Beta = $428, $P < 0.0001$). In a similar regression analysis, total health care cost was lower in the steroid inhaler group (Beta = −$1,892, $P < 0.001$). Furthermore, the use of steroid inhalers was associated with less utilization of methylprednisolone dose packs. **CONCLUSION:** The higher cost of inhaled steroid use appears to be offset by a reduction in hospital and emergency room visit cost.